WHAT WE MAY EXPECT FROM TREATMENT OF BLADDER TUMORS*

By H. C. BUMPUS, JR., M.D.
Pasadena

DISCUSSION *by Robert V. Day, M.D., Los Angeles; Frank Hinman, M.D., San Francisco; A. A. Kutzmann, M.D., Los Angeles.*

DURING the past quarter of a century the fact that cancer must be recognized early to be successfully treated has not only been thoroughly appreciated by the profession, but has been the subject of one of the most intensive educational campaigns ever instituted for the instruction of the laity; yet, in as recent a publication as the *Journal of the American Medical Association* for September 12, 1936, we find such an authority as W. Carpenter McCarty stating: "Are we recognizing cancer early? In 1918, I began a series of observations to determine just what effect cancer campaigns were having on the actual sizes of cancers being removed surgically. As pointed out by Balfour, Harrington, and Rankin, only 25 per cent of the cancers of the stomach, 50 per cent of cancers of the breast, and 58 per cent of the cancers of the large intestine are operable when seen by surgeons. These figures have not changed appreciably over a period of fourteen years. There has been little or no change in the average size or percentage of those having glandular involvement in this same period." Unfortunately, cancer of the bladder is no exception to these findings; so we are confronted with the problem of what may be expected from our present methods of treatment in these cases.

MEDICAL LITERATURE OF THE LAST DECADE

During the last decade much has appeared in the medical literature relative to the treatment of tumors of the bladder. Activated by the enthusiasm of Coffey, the possibilities of total cystectomy have been thoroughly expounded, and various techniques for the transplantation of ureters into the bowel developed. In theory such a procedure seems to offer the most probable chance for complete cure. However, in practice these theories, for one reason or another, appear to fall down. If the growth has been discovered early, is it justifiable to resort to these more radical procedures necessitating the transplantation of the ureters and the total removal of the bladder? Few surgeons are willing to subject the patient to these multiple major surgical procedures for the treatment of small tumors, when resection, excision, or some form of thermal destruction offer a possibility of cure almost the equal of radical cystectomy, and with so much less risk to the patient's life.

REVIEW OF LOS ANGELES COUNTY HOSPITAL CASES

Desiring to ascertain, if possible, what these less radical procedures offered in the way of possible cures, Doctor Silver and I reviewed all cases of tumors of the bladder admitted to the Los Angeles County General Hospital between June, 1927 and June, 1934. The last date was chosen in order that at least eighteen months might elapse following the last treatment in order to more accurately evaluate the final results. There were 135 cases in the group, thirty-six of which were so far advanced that no form of treatment other than cystotomy was undertaken. This was done in eight cases; all died in the hospital. The group of ninety-nine remaining cases seems sufficiently large to suggest what is accomplished by our present methods of treatment in large charity hospitals with constantly changing visiting staffs.

METASTASIS

For instance, in the group studied, metastasis was found at autopsy in 8 per cent of the cases. Spooner, in a review of 167 cases seen at the Mayo Clinic between 1914 and 1931, found that metastasis occurred in forty-nine cases, or 29 per cent. He stated: "Only four of these forty-nine patients presented sufficient clinical symptoms to enable a positive clinical diagnosis of metastasis from tumor to be made." When one reflects that each of these cases was subjected to a most thorough clinical examination prior to surgery, and that in 25 per cent metastasis was discovered at the postmortem examination following their operation, I feel that we may accept these figures as accurate; which indicates that in one of every four cases of tumor of the bladder, metastasis has probably occurred. Therefore, after apparently successful treatment, we should not forget Ewing's observation that "a primary tumor may be at a standstill, while internal metastases are active." If this is borne in mind, the tendency to regard all cases as probable cures living two or three years after surgery will be less, and sufficient time allowed to elapse for these hidden metastases to become demonstrable before any method of treatment is evaluated. In the interim there is no contraindication to cheerfulness regarding the situation if we do not forget, as Keyes has recently stated, that cheerfulness, while the child of hope, is also half-sister to despair.

If this 25 per cent of metastasis is added to the usual mortality associated with ureteral transplantation and cystectomy, the chances of failure with this procedure will be about three to one of possible success.

RADICAL AND LESS RADICAL PROCEDURES

The advocates of less radical procedures, such as resection, stress the fact that if these cases were only seen earlier, greater success would reward their efforts; but, as McCarty has said, they are not being seen earlier as a group. This fact, instead of being ignored, should be accepted in any discussion of treatment of tumors of the bladder. In truth, the early discovery of malignancy has been so dinged into the ears of the laity that they are fast becoming like the villagers that refused to answer a call to a real fire by the small boy that turned in so many false alarms. Propaganda for

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the early discovery of malignancy has been so persistent at times as to almost reach the dimensions of a racket for scaring the laity into the doctors' offices. Let us keep scrupulously to facts, and by honesty retain our self-respect and that of the community. Deceitful propaganda, based on fear, is rapidly defeating its own purpose. We all know that the discovery of malignancy at an early stage does not always insure its successful treatment, as the laity has been led to believe, and as all urologists are aware who have ever attempted to stop the advance of a cancer of the prostate once it has reached dimensions sufficiently large to establish its diagnosis beyond question. Tumors of the bladder are no exception to this rule, that early discovery does not always mean probable cure.

LOCATION OF THE GROWTH

Too often the location of the growth, if it is discovered early, prevents its successful resection. O'Crowley, reporting on the cases recorded in the Carcinoma Registry, gives 10.2 per cent as occurring on the posterior wall and 7.5 per cent in the vault, the only location where comparatively simple resections are feasible and constitute but 18 per cent of the cases. Most bladder tumors, however, are too extensive for such methods of treatment, the vast majority occurring in locations involving the ureters or sphincter. Among the ninety-nine cases in this series from the Los Angeles County General Hospital, resection was done six times, three with transplantation of the ureters. There were four operative deaths, and one patient is living and well over three years after surgery.

MULTIPLE OPERATIONS

The responsibility of recommending these multiple major surgical procedures, including cystectomy, for the eradication of tumors of the bladder makes one hesitate, when as experienced a surgeon as G. G. Smith has recently reported transplanting forty-two ureters in twenty-eight patients with tumors of the bladder, with a mortality of 33 per cent. Certainly the patient, when confronted with such a situation, can hardly be blamed for taking his chances with a less hazardous procedure. Could the surgeon assure the patient that a positive cure would be his reward, even these hazards might seem justified; but the reports of the most ardent advocates of cystectomy do not show that such is the case. Quinby as recently as June, 1935, reports: "Ten patients to date have been treated in the above manner. Two are alive; one, a woman, at three years without evident recurrence; one, a man, at eight years with known recurrence about the rectum and prostate during the past year. Of the remaining eight patients two of the earlier cases died as a direct result of operation, which was imperfect in one way or another. The remaining six patients have died of recurrent cancer at longer or shorter periods after operation."

COMMENT

When such final results are reported from institutions like the Brigham Hospital, where every aid to the successful outcome of any surgical procedure is available, it seems justifiable for the less fortunately situated not to be stampeded into the undertaking of such major surgical tasks, but to be content with less hazardous methods of treatment. To men such as Quinby, the urologic profession is in the deepest debt for bravely taking advantage of their opportunities, trying out what seems theoretically feasible and then reporting the final results, discouraging as they are. Too frequently one reads of the technique that has been employed and the operative mortality, but is left in the deepest ignorance as regards the final cure of the patient after a period of five years or more.

ON PATHOLOGY OF BLADDER TUMORS

Such omission leaves as erroneous an impression with the reader as the essayists who report long-time results, but fail to state the nature of the malignancy treated. I do not intend to go into a discussion of the pathology of tumors of the bladder, but think it pertinent to state that I am of the belief that tumors of the bladder grow in size, but not in their degree of malignancy with the passage of time. Such being the case, comparatively benign tumors may, due to secondary infection and sloughing, assume the most malignant gross appearance and lead the most conscientious observer to believe he is dealing with a highly malignant condition; when, in fact, he is treating a rather benign tumor, the only malignant potentials of which are those resulting from secondary sepsis, hemorrhage, or urinary obstruction. To illustrate, there were reported by Judd and Phillips four patients suffering from carcinoma of the bladder, but still living and well over twenty years after radical bladder resection. When these operations were performed, Judd considered the growths malignant, yet a recent examination of the tissue showed three of them to be of Grade I or II, and the fourth Grade III. It seems self-evident that if cystectomy is done for tumors of Grade I, the incidence of subsequent recurrence should be nil, and the mortality approximately that of ureteral transplantation for extrophy of the bladder. The greatest scrutiny should, therefore, be exercised to determine in every five years' cure that the original tumor was of a high degree of malignancy, for none can justify such extensive surgical procedures except in the treatment of highly malignant conditions.

Unfortunately, when malignancy of the bladder has developed to a point where less radical means of treatment cannot be used, the possibility of cystectomy has usually passed due to the poor physical condition of the patient, the result of urinary sepsis, secondary anemia, or renal insufficiency. It is this type of patient that is usually encountered in the country's large hospitals.

VALUE OF RADIUM

The results of treating cancer of the cervix with radium made the urologists hopeful that equally gratifying results might follow its use in the bladder. This has not happened even in such splendidly equipped institutions as the Memorial Hospital, brilliant as the results have proved in

certain isolated cases. Barringer reports 39 patients, out of 205 treated, well after a lapse of five years, a 19 per cent incidence. Radium and x-ray were used eight times in our series. Seven of the patients are dead, one is alive and well. The apparent cure in his case has followed the implantation of the radon seeds about a recurrence of the tumor. In such application, radium seems to have its chief usefulness in urologic work. X-ray still remains a palliative measure in tumors of the bladder and, in the experience of the author, is seldom worth the effort or expense it incurs.

CONSIDERATIONS PRELIMINARY TO SURGICAL INTERVENTION

Before undertaking any form of treatment, it is natural for the surgeon to consider cases of malignant diseases in the attitude of "kill or cure." The condition being hopeless unless entirely removed, he naturally feels justified in adapting the most radical of measures. Certainly, this attitude is justified in those cases of malignancy where the possibility of cure is considerably greater than the probability of death associated with the operation. In cases of tumors of the bladder this frequently is not the case, for if we add to the mortality rate associated with ureteral transplantation that of cystectomy, and from the survivors subtract the 25 per cent of undemonstrable metastases, the possibility of cure becomes exceedingly slight; while the reported operative mortality from resection of tumors of the base of the bladder frequently exceeds 25 per cent. To find one out of four patients with tumors of the bladder alive after five years, no matter what the method of treatment used, is unusual.

WHAT TYPE OF PROCEDURE SHOULD BE SELECTED

Are we not then justified in assuming, under certain conditions, that a procedure which will prolong the patient's life is preferable to one that aims only at his cure? Hunt, in reviewing his experience at the Mayo Clinic, writes: "Excepting those lesions amenable to transurethral electrocoagulation, a most conservative estimate places the inoperability of major malignant lesions of the bladder at not less than 25 per cent." During 1926 and 1927, while members of the Mayo Clinic staff, Doctor Hunt and I treated this inoperable group of patients by transvesical destruction with diathermy. The tumors were all Grade III or IV in their degree of malignancy, and each was considered to be inoperable after careful suprapubic exploration. There were twenty-nine cases in the series. In July, 1932, the patients were traced; five were alive without evidence of recurrence all over five years after operation; two others had also lived over five years, approximately 25 per cent of five-year cures. Considering that these were all inoperable cases, the efficacy of this type of treatment seemed to me deserving of more careful consideration and possible wider application in less hopeless cases. Since then Counseller and Braasch have reported seventeen such cases from the Mayo Clinic records, all considered inoperable but treated by electrocoagulation. Nine of these had malignancy of Grade III or IV, and all had lived over five years following treatment.

In conclusion, they write:

> The use of diathermy in the surgical management of carcinoma of the bladder is gradually being extended. It has brought cases in which the condition formerly would have been regarded as inoperable, the growth as non-resectable, within the field of successful treatment. It is our impression that the advantages of diathermy as a transvesical procedure for inoperable or non-resectable lesions of both high and low grades has not been sufficiently recognized.

LOS ANGELES COUNTY HOSPITAL STATISTICS

In the group from the Los Angeles County Hospital, destruction with diathermy was used in seventy-seven of these cases thirty-four times through the urethra, forty-three times by transvesical exposure. Of the former group, eleven are living from three to five years after their transurethral electrocoagulation, a 33 per cent of apparent cures—not a very brilliant result when one considers that thirty of these thirty-four patients had papillary types of tumor presumably of a low degree of malignancy. These figures indicate how uncertain ultimate recovery is, once a diagnosis of tumor of the bladder has been made. Unquestionably, the poor final results were due in no small measure to the failure of these patients to come for a check-up. Crenshaw has shown that, since the establishment of a careful follow-up system among this type of case at the Mayo Clinic, the end-results have improved in direct proportion to the increase in the number of recurrences discovered and destroyed. The latter group of forty-three patients treated transvesically contained twenty-five tumors of papillary type, sixteen of whom are known to be dead and five alive over three years. Of the eighteen infiltrating tumors so treated, ten are known to be dead and but one alive over three years. Fourteen patients, or 35 per cent, died as a result of the operative procedure. Since there are six patients alive from three to five years, and twenty-four known to be dead, there would seem to be approximately a 25 per cent possibility of relief by this method of treatment, which is apparently as high an incident of possible cure as is to be expected by any method of treatment now known. Improvement of results in the future must evidently come from a reduction in the operative mortality in order that 35 per cent of the cases are not immediately eliminated from all possibility of cure. Some have felt that the high mortality was largely due to the involvement of the ureteral orifices in the cautery destruction. In the thirty-four cases treated transurethrally, it was noted that the ureteral orifice had been included in the cautery destruction in thirteen; in only one was convalescence effected. In the transvesical series a ureteral orifice was included twenty-nine times in the cautery destruction, and in ten it was considered a decided factor in an unsatisfactory convalescence if not a direct cause of the patient's death. In the series of twenty-nine inoperable cases referred to earlier, the extensive cautery destruction involved the ureteral office in all the fatal cases, and the re-

sultant inflammatory process extended in several cases along the course of the ureters to the perivesical tissue. Certainly, wherever possible, the insertion of a catheter into an involved ureter and its retention there during the first days of convalescence should be an aid in reducing one cause for the high mortality of transvesical thermal destruction. Apparently such destruction is best accomplished by diathermy; for of eight patients treated with the Percy cautery, four died immediately after operation and two others are known to be dead.

IN CONCLUSION

Surgical diathermy, both transvesical and transurethral, has in this group of seventy-seven patients resulted in seventeen operative deaths and seventeen apparent cures of from three to five years' duration.

We may conclude, then, that surgical diathermy offers a possibility of cure equal to the risk involved in its application. In other forms of treatment the risk of death at, or immediately following operation, appears much greater than the possibility of cure.

112 North Madison Avenue.

DISCUSSION

ROBERT V. DAY, M. D. (1930 Wilshire Boulevard, Los Angeles).—We should feel grateful to Doctor Bumpus for his efforts in the matter of "debunking" misleading propaganda about cancer in general, and bladder carcinoma in particular. Such frank criticism is ordinarily a thankless task, and the critic is all too frequently accused of being a reactionary. But Doctor Bumpus, with his well-known sound clinical judgment and background of experience, is entitled to speak with authority and is virtually immune to any such countercriticism which might be leveled against him. Moreover, Doctor Bumpus sees fit to disagree in most instances with those who advocate such radical procedures as total cystectomy and reimplantation of the ureters. Such measures seldom result in a cure, and in most instances must be accredited to an insufficient experience, wishful thinking or a considerable indifference to the patient's best interests, not to say his exploitation for the sake of performing spectacular operative procedures. The fact that a large percentage of individuals with cancer of the bladder already have metastases not clinically recognizable means, in most instances, that total cystectomy and reimplantation of the ureters (in case the patient survives the operation) was of no avail, and subjected the patient to great danger and needless distress. The absence of metastases can be assured only after the lapse of years or at autopsy.

About twenty years ago Leo Buerger gave us some statistics on bladder tumors which remain just as informative and authoritative as when first published. Analyzing a large series, he stated that 55 per cent were benign papillomas easily cured by electrodesiccation applied through a cystoscope; 37 per cent were papillary carcinomas, most of which were advanced; but a large percentage of these papillary carcinomas could have been cured by electrodesiccation either through a cystoscope or applied through a suprapubic cystotomy opening, had the early warning symptoms been heeded and proper treatment instituted at that time. The remaining 8 per cent are infiltrating tumors. Some of these last are, by reason of their location, susceptible of resection.

The series analyzed by Doctor Bumpus are from all urological services at the county hospital. I am perhaps familiar with a greater percentage of these cases than anyone else, not only because of conducting one of the active services, but also by reason of a certain contact with most of the services as chairman of the urology staff. Most of such cases on admission were far advanced and hopeless from the standpoint of cure. However, a great deal can be done in the way of palliative procedures by surgical diathermy or, as I have referred to it above, electrodesiccation—meaning the same thing.

Unless implanted cystoscopically in an unopened bladder, radium therapy has proved not only disappointing, but more often than not has been the cause of greatly added distress and suffering. The same applies to therapeutic x-ray, except mild doses for various palliative purposes. After extended experience with the Percy cautery, I find it ill-adapted to the treatment of bladder carcinoma for the reason that the extensive cicatricial tissue ensuing almost always results in ureteral stenoses with grave changes in the kidney following, unless the patient sustains a primary operative death.

The conclusion is, therefore, that practically all of the benign tumors and an overwhelming percentage of the papillary carcinomas could have been cured if an early diagnosis (followed by adequate therapy) had been made. There is usually one or more early symptoms present that should admonish the physician to consult the urologist. The most common, of course, is hematuria or some degree of dysuria. Every patient with hematuria should be subjected to cystoscopic examination unless it is a case of terminal hematuria resulting from a hyperacute posterior urethritis due to gonorrhea. In every case, with the above exception, the patient with hematuria should be cystoscoped at once, *not* delayed till the bleeding ceases.

One must bear in mind that even those patients with benign papilloma of the bladder, eventually die from carcinoma unless the papilloma is completely destroyed and a cure effected. After the papilloma has been destroyed by electrodesiccation, the patient should return for cystoscopic examination regularly every three or four months for a period of five years. By so doing, any local recurrences will be discovered while still small and, hence, easily destroyed. Even in benign cases local recurrences in the fourth year are not unusual.

FRANK HINMAN, M. D. (384 Post Street, San Francisco).—Several points of view in this paper merit careful consideration, and it is a privilege to discuss them briefly. First: The early diagnosis of tumors of the bladder has not been advanced. "Deceitful propaganda, based on fear, is rapidly defeating its own purpose. We all know that the discovery of malignancy at an early stage does not always insure its successful treatment." Second: The grade of malignancy of a tumor is constant from beginning to end. "Tumors grow in size, but not in their degree of malignancy with the passage of time." Third: Radium and x-ray are the great disappointments in the treatment of vesical carcinoma. Fourth, as regards surgery: Tumors, even when discovered early, will be located in a position which would permit resection in less than 20 per cent. Even in these cases the results of surgery are poor. The mortality of uretero-intestinal implantation and cystectomy is high (cited: 33 per cent, G. G. Smith; 20 per cent, Quinby) and the chance of cure is so small (cited: 10 per cent, Quinby) as to impeach the operation.

Let us examine the conviction of mind implied in these four assertions, and the conclusion that diathermy is the one method of choice for the treatment of all tumors.

From the surgeon's point of view, an early diagnosis is one which antedates extension locally and the onset of metastases. It has no reference to duration. There certainly can be no objection to an early diagnosis in this sense, and the results should be analyzed and compared accordingly. The fact that an increase in the number of early diagnoses has not been made is no argument against the advantages of such a diagnosis. As to the citation of Quinby's discouraging results with surgery, apparently only one of his patients had an early diagnosis. In Bumpus' own series, 36 of 135 patients had cancer so far advanced, on the patient's admission to the county hospital, that any form of treatment was hopeless. Twenty-five others had metastases, which put them into the same class. How many of the remaining patients had an early diagnosis is not stated. It is probable that a diagnosis had been made in the majority and that many had been given some form of treatment before their admission. This is a cause of real discouragement to surgeons. If the diagnosis

is early, the decision to operate should be made in the few weeks after the discovery of the tumor and not put off until years later. Then it is too late, because, no matter how well the local appearance has been kept in check by repeated fulgurations, the growth probably has extended locally and spread elsewhere. The difficulty in making this decision is serious and distressing, and is bound up with our ideas of the variability in the malignancy of these tumors.

From the standpoint of treatment, tumors of the bladder are of two kinds—benign and malignant—and all benign papillomata are potentially malignant and recurrent. Twenty-five years ago Beer introduced the use of fulguration, and the perfection of this method has revolutionized the treatment of tumors of the bladder. With regular follow-up for recurrences and implantations, fulguration (diathermy) undoubtedly cures benign and malignant papillomata. To advocate surgery in these cases would be criminal. Frequently the clinical differentiation between malignant papilloma and papillary carcinoma (infiltrating) is impossible, and biopsy reports are often unreliable. A trial of fulguration in such an instance is proper. No doubt many early types of papillary carcinoma are cured by diathermy. Indecision and doubt arise when the response is slow and recurrence regular; this is the time to consult with the patient and to decide for or against surgery. The delay, which in many cases, unfortunately, has been justified, too often has made this a late, instead of an early diagnosis, as it was when the tumor was first discovered. With other tumors frankly malignant and infiltrating on first study, a test period of diathermy, provided surgery is contemplated, is not indicated. The important question, once the malignancy is established pathologically, is: has it spread from its primary location to adjacent structures, to lymph nodes, to bones, or elsewhere? If a careful study gives a negative answer, surgery is indicated. In my experience, the grading of tumors after Broders gives no advantage in answering the foregoing questions, except in the case of papillary carcinoma in which a grading of three or four might hasten a decision in favor of surgery. A low grade of malignancy in squamous-cell carcinoma, on the other hand, is no argument against surgery.

Many still adhere to the use of radium and x-ray therapy. My experience with radiotherapy corresponds to that of Doctor Bumpus'. However, many tumors not curable by radiation are radiosensitive and irradiation preliminary to resection seems logical, particularly if the difficulties of technique are considered as the principal cause for the poor results. The need of radiation before cystectomy is not similar.

The clean resection of a vesical cancer, usually vascular, friable and much more extensive than judged cystoscopically, is extremely difficult—much more so than total cystectomy. The removal of such a tumor with a wide margin of healthy wall without spreading tumor cells all over the operative field or squeezing them into lymph and blood vessels is not easy, particularly when the tumor is posterior and near the ureteral orifice or trigone, as the majority of them are. Beer has emphasized the advantages, when making resections, of using the electric cautery and cautery knife, and of flushing the whole field with alcohol afterward. Even with these precautions the chance of a complete clean removal is small. Preliminary radiation, perhaps by attenuating the growth and thereby diminishing the risk of implantation at the time of surgery, may increase the likelihood of cure. When one considers, in connection with these technical difficulties, the small proportion of cases in which the position of the tumor (20 per cent) and an early diagnosis (uncertain) give an indication for resection, it is no wonder that the few successes are lost in the mass of failures. The decision to resect a tumor of the bladder, therefore, should be based on the most rigid indications, and all the refinements of technique should be followed most conscientiously. Even then cures will be fewer than with total cystectomy in comparable cases because removal of the bladder unopened and intact removes the great risk of implantation. It is for this reason that total cystectomy is a better surgical procedure and one which would replace resection completely were it not for the limitations imposed by the necessity of diversion of the urine. The cures in a series of patients operated upon at the period of early diagnosis (growth limited to the bladder) who survive ureteral transplantation and cystectomy should be near 100 per cent and not the one cure in ten of Quinby's series, held up by the author as an impeachment of the operation. To my mind, Quinby showed poor judgment in the selection of his test material, and his results in ten patients—in seven of whom at least the growth had spread beyond the bladder—form no argument against performing cystectomy for patients in whom the growth is limited to the bladder. Doctor Bumpus cites a mortality of 35 per cent for so-called surgical diathermy, which is considerably higher than Quinby's 20 per cent for cystectomy. This risk, therefore, cannot be prohibitive, since he takes a greater risk with less promise of cure.

In conclusion, I would say that all of these methods have a place in our attack on cancer of the bladder. Fulguration (diathermy) undoubtedly is the most useful. X-ray and radium may be useful at times. Resection has definite limitations. Ureteral transplantation and cystectomy should be done for patients with an early diagnosis and not left as a measure of last resort, as it has been. Ureteral transplantation and surgical diathermy should be resorted to occasionally when clean cystectomy is found to be impossible. Previous diversion of the urine will reduce materially the high mortality which is caused principally by ureteral obstruction and infection; much more radical electrocoagulation is permitted because there is no fear of ureteral obstruction and the bladder is no longer needed.

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A. A. KUTZMANN, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Bumpus' paper is so comprehensive that one cannot add anything, merely further emphasize some of the important points. The treatment of tumors of the bladder has always been a bugbear to the urologist. In so many of the cases he seems almost defeated in his endeavors before he even begins. This may be considered as due to several facts. First, the insidiousness of the onset of this disease. Too often bladder tumors are silent until developed far along, before the first danger signal is detected, probably an hematuria, or some other less significant disturbance in urination. Secondly, the lack of proper recognition of signs and symptoms by the general practitioner. Too often the physician and patient are lulled into a false sense of security because an hematuria was present on only several voidings, or for one day and disappeared spontaneously, only to reappear later when the case is beyond help. Let me make a plea here for the immediate proper investigation of any hematuria, no matter how apparently insignificant. Statistics have shown that almost one-half of all hematurias are due to some type of new growth in the urinary tract. This sign may well be classified with the early detection of a lump in the breast. The physician and patient should never be satisfied until a proper explanation for the hematuria has been found. It can be seen, therefore, that the first and second factors prevent the probability of an early recognition, which is so paramount. This, however, accounts for only a part of the cases, since in many others, as has already been pointed out, signs and symptoms appear for the first time only after the growth has become far advanced.

Third, all tumors of the bladder are potentially or definitely malignant. This is a hard fact driven home repeatedly to all individuals who have had experience with these growths. Even an occasional growth, benign under the microscope, will recur at times leading to the clinical course of a mildly malignant growth. While it does not always seem so, I have been forced to the conclusion in some cases that, as the course of bladder tumors advances, especially while being treated, the degree of malignancy seems to increase. This I have believed to be due to a stimulation and irritation of the urinary infection and treatment; especially with the latter it has appeared that insufficient fulguration through the cystoscope or the action of radium seemed to occasionally flare up some of the carcinomata to a more rapid growth and a more extensive infiltration. Fourth, most bladder tumors are usually situated about the vital portions of the bladder—the trigone, ureteral orifices, and vesical neck. Since the bladder is an organ upon whose good function depends the well-being

of other organs, there results the encountering of many technical difficulties from these structures, especially in the surgical treatment of bladder tumors, such as resection with ureteral reimplantation, ureteral transplantation, cystectomy, etc. These, under our present state of development, still carry a very appreciative mortality.

I heartily agree with Doctor Bumpus that the diathermic destruction of bladder growths, especially the large ones, should receive more consideration. It is true that the basic principles in cancer surgery call for the complete dissection of the growth with its draining lymphatics, but this is not always practical in bladder surgery. The technical operative difficulties seem to impose too great a burden on the patient, leading to high mortality. It is beautiful, spectacular surgery for the surgeon, but does not necessarily help the patient. Even if the patient survives this increased surgical risk, morbidity still shows, regardless of the type of treatment, that only 20 to 25 per cent of patients are alive after the usual three- to five-year cure period. Too often these patients are seen late, either because of failure to recognize early signs or the long, insidious course of the disease; there have occurred permanent destructive changes due to infection, obstruction, ureteral dilatation and renal damage, resulting in additional risk for any type procedure. The use of diathermy under complete vision through an open cystotomy, especially in cases giving an almost hopeless prognosis, has made it possible to completely destroy an appreciable number of these growths, especially when extensive, and to finally end up with as many cases benefited as with the other more formidable procedures. The writer has known of a patient to be well after ten years following the diathermic destruction of a Grade 4 growth through a cystotomy.

ENTERITIS OF UNKNOWN ORIGIN*

REPORT OF AN EPIDEMIC IN A CHILDREN'S INSTITUTION: 27 CASES WITH 6 DEATHS

By J. C. GEIGER, M.D.
San Francisco

BETWEEN February and August, 1936, an outbreak of enteritis occurred in an institution for young babies. The institution is a home for infants, and the physical plant consists of three attractive, well-built, well-planned cottages. The facilities available for the care of infants are excellent, and the four different wards and three other smaller rooms permit of adequate isolation for individual babies or small groups of infants.

FIRST REPORTS

It would seem appropriate to invite attention to certain circumstances involved in the recent incident to be described, and the part played by the Department of Public Health. Babies, to the number of at least 27 were affected, and 6 of these died, during the period of February to August, 1936. The 6 deaths occurred April 10, April 12, May 10, June 4, August 1, and August 10, and the causes of death given included enteritis (unqualified, and as one of two or more causes), and others, as otitis media, mastoiditis, congenital cyst of the cerebrum, and bronchopneumonia. The Department was uninformed, however, of any other instances by the attending physicians or by the other physicians whose advice was sought in consultation or discussion. On routine inspection of the home, for renewal of permit, and following an anonymous inquiry as to "whether everything is all right in that institution," it was learned that there had been 27 cases and 6 deaths of an affection that had presented definite diagnostic difficulties as well as a definite epidemiologic problem. It is very regrettable that the incident was not reported to the Department of Public Health, for the study that it was possible to make was entirely in retrospect, and reporting of the incident would have permitted a concurrent epidemiologic study which might have been more fruitful.

PREVENTIVE MEASURES

As immediate measures instituted in August, against further cases, no admissions were permitted to the institution, and discharges were to be made only after complete recovery of the child and freedom from all clinical signs of the affection. This limited the incidence to the occupants of the home. For the succeeding period of about four weeks no new cases developed, and the outbreak completely subsided. Laboratory studies of specimens from members of the staff and personnel failed to reveal the carrier state for any of the organisms related to the enteric fevers. Since certain epidemiologic points of interest had not been secured, the study was undertaken in an attempt to compile relevant information from all available sources.

IMPRESSIONS

From the accumulated data, the following impressions are formulated:

1. In both cases and deaths, distribution was equal between males and females.

2. The mean age (on admission), among those affected approximates 30 days, the median being 20 days; in the deaths, however, ages on admission to the institution were 9, 5, 49, 45, 127, and 101 days, respectively.

3. The date of onset in the first cases recorded was February 25 (in cases 1 and 2), 4 and 5 days after admission, respectively.

4. Additional instances occurred for slightly more than five months to the total number of 27, at intervals (between dates of onset of successive cases), of from 7 to 21 days.

5. The time intervals between date of admission and date of onset in individual cases, as nearly as can be ascertained from the record, varied from 1 to 33 days. The longest intervals were 19, 24, and 33, and the shortest was one day. These, possibly even the two and three days' periods also, should be discarded before attempting to determine a mean for the series. It would appear that the normal period between admission and onset dates were seven days, although a variation of four days above or below this mean should be allowed.

6. From the case records alone, it is impossible to formulate accurate impressions of the severity of the diarrhoea. Vomiting, while it did occur, was not always present. In evaluating diarrhoea, one is confronted with meager information from the case records also. An arbitrary definition of a definite change in the number of stools with description of "curdy," "loose," or "watery," and four to five or more stools daily without qualifying

* From the office of the Director, Department of Public Health, City and County of San Francisco.